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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,709	06/12/2001	Wade Summers	SUM.101	3775

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EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1733

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DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/879,709

Applicant(s)

SUMMERS, WADE

Examiner

Justin R Fischer

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 April 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17 is/are rejected.
- 7) ☒ Claim(s) 15 and 18-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 6, 7, 9, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Krum (US 952,675, of record), Peck (US 963,320, of record), or Grubb (US 1,243,513, of record) and further in view of Mitchell (US 4,305,622, newly cited) and Ross (US 4,284,700, newly cited). Krum, Peck, and Grubb are each directed to a tire assembly comprising a tire and a rim, wherein a plurality of inflated balls are disposed within the hollow space defined by said tire and rim, such that the diameter of each of said balls spans the hollow space. While the references fail to expressly define the rim as a "safety rim" (one piece rim with internal recesses that receive the edge of the tire), one of ordinary skill in the art at the time of the invention would have found it obvious to form the rim of the previously noted tire assemblies as a "safety rim" since such a construction has been extensively used over approximately the last 40 years and represents a safe and economical alternative to previous multi-piece tire constructions. Mitchell (Column 3, Lines 10-16) and Ross (Column 1, Lines 52-53) evidence the well-known and conventional use of "safety rims" in the manufacture of current vehicle tires. It is further noted that the tire assemblies of Krum, Peck, and Grubb are not limited to the multi-part rim constructions depicted in the respective

Art Unit: 1733

figures; in fact, (i) Krum states that the rim "may be of any kind as is usual for the particular class of casing used" (Lines 64-66), (ii) Peck states that "the tire casing may be attached to the wheel in any usual manner" (Lines 90-91), and (iii) Grubb states that the tire shoe "may be carried by a suitable rim of the quick detachable type or otherwise, of any approved style" (Lines 75-79). Thus, it is evident that the specific rim construction is not critical in the tire assemblies of Krum, Peck, and Grubb and as such, one of ordinary skill in the art at the time of the invention would have found it obvious to form the respective tire assemblies with a "safety rim" (one piece rim) for the well recognized economical and safety benefits noted above, it being emphasized that rim technology has significantly advanced since the early 1900's at which time the tire assemblies of Krum, Peck, and Grubb were conceived.

Regarding claim 2, Krum defines an air valve (c3), Peck defines an air valve (29), and Grubb describes a "usual valve" that is not depicted (Lines 95-100).

With respect to claim 6, as previously set forth in Paper Number 3, Page 6, one of ordinary skill in the art at the time of the invention would have found it obvious to inflate adjacent balls with different internal pressures as the respective balls would be expected to have somewhat different pressures.

Regarding claims 7 and 9, Peck describes the placement of an inflatable tube (10) within the tire cavity between said plurality of inflated balls and the rim. Krum and Grubb are not relied upon by the examiner in the rejection of claims 7 and 9.

Regarding claim 17, in describing the inflated balls, Krum (Column Lines 102-105), Peck (Lines 75-77), and Grubb (Lines 75-86) all suggest the use of a flexible or

Art Unit: 1733

resilient material, such as rubber or the like. While none of these references provides an express teaching for the use of polyurethane, one of ordinary skill in the art at the time of the invention would have found such a material selection to have been obvious since polyurethane, along with natural and synthetic rubbers, is extremely well known and extensively in the tire industry to form elastic bodies or components, as previously set forth in Paper Number 3, Paragraph 12. It is noted that Krum, Peck, and Grubb suggest that the critical aspect or characteristic of the material used for the inflated ball is flexibility or resiliency, wherein rubber is an exemplary embodiment that satisfies the desired characteristics. Also, while the claim recites the welding of polyurethane sheets, these limitations are "method limitations" and fail to further define the structure of the claimed invention, there being no evidence of such a method resulting in a materially different article (inflated ball).

3. Claims 3, 4, 8-11, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krum, Peck, Grubb, Mitchell, and Ross as applied in Paragraph 2 and further in view of Richards (US 1,332,953, of record). In describing the plurality of balls, Krum, Peck, and Grubb suggest that the balls are inflated. However, in each instance, the references do not describe the specific inflation means and thus, the references necessarily fail to disclose that at least one ball contains a valve assembly. In any event, one of ordinary skill in the art at the time of the invention would have found it obvious to include a valve assembly as the inflation means in at least one ball since this construction represents an extremely well known and extensively used means to control the pressure within a restricted region, such as a ball in tires. For example,

Art Unit: 1733

Richards is directed to a similar tire construction having a plurality of inflated balls in which each ball contains a valve assembly to inflate the respective balls. As such, one of ordinary skill in the art at the time of the invention would have readily appreciated the inclusion of a valve assembly in each of the balls of Krum, Peck, and Grubb as detailed above.

Furthermore, regarding the use of polyurethane, Krum, Peck, and Grubb all suggest the use of a flexible or resilient material, such as rubber or the like. While none of these references provides an express teaching for the use of polyurethane, one of ordinary skill in the art at the time of the invention would have found such a material selection to have been obvious since polyurethane, along with natural and synthetic rubbers, is extremely well known and extensively in the tire industry to form elastic bodies or components, as previously set forth in Paper Number 3, Paragraph 12. It is noted that Krum, Peck, and Grubb suggest that the critical aspect or characteristic of the material used for the inflated ball is flexibility or resiliency, wherein rubber is an exemplary embodiment that satisfies the desired characteristics.

Regarding claim 9, the language "thin wall" fails to provide a quantitative relationship to adequately describe what constitutes a "thin wall" and a "thick wall". Applicant argued in Paper Number 4, Page 10 that a thin-walled ball relies upon the difference between the internal and external pressures of the ball while a thick-walled ball relies upon the stiffness of the material. However, this argument fails to provide a quantitative distinction between a thin-walled and a thick-walled ball. It is noted that claims 15 and 16 contain language that adequately defines a "thin-walled" ball as

Art Unit: 1733

having a wall thickness less than 3% of its diameter. As such, it is the examiner's position that Krum, Peck, and Grubb disclose the use of inflated balls having thin walls, as required by claim 9.

With specific respect to claim 10, while the claim recites the welding of polyurethane sheets, these limitations are "method limitations" and fail to further define the structure of the claimed invention, there being no evidence of such a method resulting in a materially different article (inflated ball).

Regarding claim 14, one of ordinary skill in the art at the time of the invention would have found it obvious to inflate adjacent balls with different internal pressures as the respective balls would be expected to have somewhat different pressures.

4. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krum, Peck, Grubb, Mitchell, Ross, and Richards as applied in Paragraph 3 and further in view of the Admitted Prior Art (Page 8, Lines 9-12)). While the prior art references are silent with respect to the inclusion of a rim lock, such a component represents a standard tire component that presses the tire edge portions against the recesses of the rim, thereby providing a secure attachment between the tire and the rim, as shown for example by the Admitted Prior Art (Page 8, Lines 9-12). As such, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a rim lock in any of the tire assemblies described by Krum, Peck, or Grubb since it is desired to obtain a good attachment between the tire and the rim and a rim lock represents a standard or well known means of obtaining this desired property in a variety of tire constructions. It is noted that applicant has further stated (Paper Number 4, Page 10)

Art Unit: 1733

that rim locks are well known in the tire industry and has identified multiple catalog pages in which this component is described. Thus, it is clearly evident that a "rim lock" represents a standard/well known tire component and one of ordinary skill in the art at the time of the invention would have readily appreciated the use of such a well known tire component in a plurality of tire assemblies, including those described by Krum, Peck, and Grubb.

#### ***Allowable Subject Matter***

5. Claims 15, 16, and 18-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. There was no reference in the prior art search that disclosed, taught, or suggested a tire assembly comprising a tire and a safety rim (conventional one piece rim), wherein a plurality of inflated balls, each having a diameter that spans the space between the rim and the tire casing, are disposed within the tire cavity, such that each ball can support a load (in pounds) equal to or greater than one hundred times the cube of its diameter (in inches) without exceeding its tensile and elastic limit and each ball has a wall thickness less than 3 percent of its diameter. In particular, none of the prior art references of record disclosed the claimed relationships between the ball diameter, wall thickness, and load capabilities.

#### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-14 and 17 have been considered but are moot in view of the new ground(s) of rejection.



Art Unit: 1733

***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jacobs (US 1,424,360), Booharin (US 2,143,471), Wolfrom (US 1,654,567), Harris (US 1,185,660), Evans (US 967,506), Mains (US 856,411), Hill (US 627,616), and Welch (US 575,797) are all directed to a tire assembly having a plurality of balls disposed within the tire cavity; however, they are considered to be cumulative to the applied art used in the rejection above.

Furthermore, Modern Plastics Encyclopedia (Page 97) evidences the well-known use of polyurethane elastomers in the manufacture of industrial tire components, wherein the desired resiliency is obtained while improving rigidity.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1733

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(703) 605-4397**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Justin Fischer

June 16, 2003

  
STEVEN D. MAKI  
PRIMARY EXAMINER  
GROUP 1300  
AV 1733  
6-16-03